

Michael Weyland, Marco Rehm

## How can Economics Education be Implemented without a Separate Subject? A Case Study from Germany

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Economics education, school development, school subject, company internship, classroom experiments, simulations

The discussion about the pros and cons of economics as a separate school subject versus integration of economics in other subjects has been going on for many years in Germany – and agreement has not been reached yet. It is therefore useful to focus on the question of how social science-based economics education can be implemented successfully irrespective of theoretical debates. The public grammar school Siebengebirgsgymnasium in Bad Honnef strives to provide all students with a basic economics education and a selection of additional social science-oriented classes. Using some exemplary projects, the Siebengebirgsgymnasium shows how school development can address the controversy about politics and economics education and to foster a creative and social science-based economics education. The example shows, that a focus on economics education is possible at schools of the general education system even without a subject solely dedicated to economics.

Die Diskussion über die Vor- und Nachteile eines Schulfachs Wirtschaft wird seit vielen Jahren geführt – und eine Einigung ist nicht in Sicht. Es erscheint daher sinnvoll, die Debatte über das Für und Wider eines Schulfachs Wirtschaft vorerst auszublenden und sich der Frage zuzuwenden, wie eine sozialwissenschaftlich fundierte ökonomische Bildung an allgemeinbildenden Schulen konkret ausgestaltet werden kann, damit sie erfolgreich ist. Das Städtische Siebengebirgsgymnasium in Bad Honnef hat es sich zum Ziel gesetzt, allen Schülerinnen und Schülern eine ökonomische Grundbildung zu vermitteln, um sie auf ein eigenverantwortliches Leben in einer zunehmend komplexen Gesellschaft vorzubereiten. Anhand einiger exemplarischer Projekte wird aufgezeigt, wie diese Schule seit 2003 versucht, die Kontroverse um ein Schulfach Wirtschaft kreativ zu wenden und eine sozialwissenschaftlich fundierte ökonomische Bildung zu realisieren. Das Beispiel zeigt, dass sich eine ökonomische Schwerpunktsetzung an allgemeinbildenden Schulen auch ohne ein eigenes Schulfach realisieren lässt

## 1 Introduction

Most general education schools in Germany do not offer economics as a separate school subject. In contrast to other countries, there are hardly optional subjects to choose from. Instead, general education in Germany means that there is quite a tight core curriculum which all students have to run through. As part of this curriculum multi-perspective subjects like social sciences or politics/economics have been established in the German states. They contain economics but are not exclusively dedicated to economics.

Nevertheless, there has been a debate about whether to establish economics as a separate subject or to stick with the present model of multi-perspective subjects (also dubbed “integration

subjects”). The discussion about the pros and cons of economics as a school subject has been going on for many years - and there is still no agreement in sight. Among the numerous arguments against economics as a school subject are those made by Hedtke (2008) and Hippe (2011), among others. They claim that there persists a methodological rigidity in economics which must not be transferred to a school subject. According to this point of view, a separate subject will lead to vested interests of enterprises affecting the subject and consequently neoliberal indoctrination of students. Furthermore, a separate subject would foster reproducing economic lecture-style teaching on the part of teachers instead of enquiry-based learning. “If one ignores the lyric of preambles and focuses on the core of economic competencies and contents instead, one finds that this ‘economic education’ consists almost entirely of academic economic knowledge” (Hedtke 2008, 458, translation by the authors). In contrast, better economics education had necessarily always to refer to economic reality instead of pure theory, thus had to be integrated into a broader perspective including political sciences and sociology. This would allow for multiple perspectives and to preserve the controversiality of social science topics, according to this point of view.

*Michael Weyland* is teacher at university (abgeordneter Lehrer) at the Zentrum für ökonomische Bildung (Center of Economics Education) University of Siegen.  
email: [weyland@zoebis.de](mailto:weyland@zoebis.de)

*Marco Rehm* is a research assistant at the Centre of Economic Education in Siegen (ZöBiS). He received his PhD in 2012 for empirical research about gains in economic competence in adolescents through playing commercial manager games.  
email: [rehm@zoebis.de](mailto:rehm@zoebis.de)

On the other hand, Kaminski (2009) and Krol et al. (2011) advocate a separate subject on the grounds that multi-perspective subjects are bad at delivering economic knowledge and have so far not delivered a truly economic perspective at all yet. "In principal, learners grasp the intrinsic logic of economics and their relationship to other social subsystems. If someone does not understand the institutional character of a given economic order, in which he works, consumes, votes and acts as an entrepreneur, he will only deficiently be able to identify and judge about facts of the economic world, the working world and politics" (Kaminski 2009, 532f., translation by the authors).

It is no coincidence that the German scientific community as well as German social science teachers have been debating this topic for years. Notwithstanding the specific debate in Germany, similar problems of how to implement economics in schools persist as examples from France and England show (c.f. Audigier 2002; Abbot 2003; Kerr 2003). In the end it is always about the following question: to which extent can economics education be taught sustainably if not as a separate school subject? The fronts are hardened in these institutional questions – not least because the intermediate position in the school subject debate is a difficult one to defend. Ultimately one can only be for or against the issue of economics as a school subject.

However, there are also commonalities between the two camps. Advocates of economics as a subject as well as most of its opponents agree that economic education in schools is absolutely necessary in order to understand an increasingly globally connected world: „Here the truism applies, that today one needs more specific knowledge, whether as a consumer, employee, investor, or economic citizen, in order to understand the modern (economic) world and to act in it“ (Hedtke 2008, 458, translation by the authors). The proponents of economics as a school subject as well as its opponents largely agree that economics education should significantly differ from a purely academic approach of didactic modeling. „We argue in favor of a problem-oriented concept of economics education. It is not about the curriculum models of subject classifications, but rather the specific increase in insights and competencies among teenagers, which is made possible by dealing with economics related situations in life“ (Krol et al. 2011, 202, translation by the authors). The proponents of economics as a school subject would probably agree with Hedtke when he rejects „pure economic reductionism“, and advocates „a model of a person knowledgeable about social sciences“ as the goal of economics education (Hedtke 2008, 461, translation by the authors).

It therefore seems helpful to set aside the debate about the pros and cons of economics as a school subject in Germany and to address the question of how quality social science-based economics education can be designed successfully within the current framework of general education schools

and particularly within the economics-leaning integration subjects like social sciences or politics/economics. This question is much more concrete and often brings advocates from both sides of the debate closer together.

The Siebengebirgsgymnasium, a public grammar school within the general education system, has been striving to provide all of its students with a basic economics education and a selection of additional voluntary economic courses. Through this program the school tries to prepare students to live responsibly in an increasingly complex and globally connected society. The school receives financial support for these efforts from the Hans Trappen Foundation, the money of which goes exclusively to economic education projects. The foundation's goal is to "boost students' understanding of economic issues in an objective way and to hone their awareness of economic ethics" (see [www.trappenstiftung.de](http://www.trappenstiftung.de)). With its school program, the Siebengebirgsgymnasium has defined clear educational objects in economics for each form, which are substantiated by specific projects. These exemplary projects as well as the educational objectives they address are lined out below.

## 2 Exemplary approaches

### 2.1 Enabling inductive learning – the case of the island game

At the 7th grade level, the island game is central to the social science lessons. This playful approach helps to demonstrate the necessity of dealing with scarce resources economically. It also illustrates the development of the division of labor and the functions of money in a hands-on way. In addition, teachers try to introduce social science-oriented ways of thinking and working methods. In order to achieve these aims, students will be introduced in the following fictional situation that will accompany them in further lessons: The class won a flight to the Caribbean. Unfortunately, the plane crashed due to technical problems. The students managed to escape to a deserted island without their teacher. On these terms, the students are faced with concrete problems and challenges that need to be mastered in the group. In order to orient the students for the further work, a map of the island is hung up on the classroom wall. In addition a list of the rescued people and all available tools is created by the students. Afterward, the class must reach consensus as independently as possible on their next steps and their approach, including the concrete division of tasks. The teacher observes the game from outside and intervenes only by proposing the election of a discussion leader.

According to experience, the students decide to introduce the division of tasks. The most immediate tasks are to get water, to make a fire, to fish, to collect fruits etc. One decision is always to find an island leader. The pros and cons of any procedure in order to coordinate individuals to groups or of election procedures for positions of responsibility

can thus be discussed and checked thoroughly. The emergence of task division with corresponding fields of responsibilities and responsible persons on the island – and especially the preferred election mode of the students – allows for a first rudimentary comparison with the political system in Germany.

Furthermore, the students very soon have the idea of introducing some kind of money. Using the island game as an example, the functions of money can be easily explored. Concrete proposals for a suitable means of payment on the island typically include shark teeth, rare shells or plastic remains. Experience has shown that the essential features of means of payment can be worked out in detail in this activity. In one class a student even suggested an accounting system (chalk marks for each island inhabitant that are drawn and managed by a representative in a cave on the wall). Accordingly, not only a comparison with the Euro cash, but also a comparison with the banking system can be drawn. Afterwards, the following problem is announced to the students:

- Total number of trees existing on the island: 2,000
- Minimum age at which a tree can be felled: 20 years

The students are to create concepts in small groups with which they can ensure the long-term supply of wood for the inhabitants of the island. As measures to increase the resource will only be effective in 20 years, they have to set up a plan of land use for the existing holding. Furthermore, an emergency plan in case of the occurrence of a storm or forest fire affecting the resource is also necessary.

Thus, many other problems can be worked out effectively in an inductive and enquiry-based manner. It is only necessary to comply with three principles:

- First, the students are given the problem without being told which subject content is being taught (problem-oriented way of learning).
- Second, the students develop their problem-solving skills as independently as possible (action-oriented way of learning).
- And third, the students compare their solutions with structures and processes existing in the real world (reality-oriented way of learning).

The island game provides a useful framework for combining economic and political content and thus allowing for a multi-perspective and controversial education. Concise teaching aids for the topic "island game" have been published by Gregor Pallast (Pallast 2010, 65f.).

## 2.2 Social science-based design of the company internship

The origins of the occupational orientation of schools in Germany date back to the educational

concepts of the 18th and 19th century (see Kaiser 1974). But only in the early sixties did practice-related experience receive increased attention throughout (West) Germany. Originally, practical training in companies was meant to help students choose their professions (Groth a.o. 1971; Platte 1986).

Thus, Platte's concept of a practical training as "school in a company" was widely used, also because extensive application plans for the trainees were developed in 16 different occupations. However, the concepts of the 70s were based on the circumstances in the former secondary schools ("Realschule" and "Hauptschule") with their approach to qualify their students for an occupation, not for university like grammar schools.

Up to today, there is often a focus on occupational topics during the preparation, experience and the follow-up of the company internship, even though Franz-Josef Kaisers' view (1971) was that the company internship should not serve the purpose of finding a profession, but to give an insight into the social structure of the economic world and working environment. Economic issues of general education are often only discussed superficially in this context. This seems to be questionable, especially with regard to the general education form which is now in highest demand – the "Gymnasium" secondary school – because, generally, high school students have to make their career choices much later.

With regard to teaching material on the market for the topic "company internship", it is clear that the traditional orientation still predominates. But the Siebengebirgsgymnasium has chosen a different path. Here the internship is primarily viewed from the perspective of economics education. The school has included an obligatory internship in its curriculum for many years.

The preparation and follow-up focus on 9<sup>th</sup> grade classes. The primary goal is to better integrate theoretical book knowledge and practice. During their company internship the students gain concrete insight into „how business really works“, which is meant to correct distorted perceptions of reality. In addition, the students practice empirical methods of social research. The following two aspects are crucial to the company internship at the Siebengebirgsgymnasium:

### *Analysis of potential and work*

The students analyze their strengths, weaknesses and potential and compare them with the changing expectations of qualified workers in selected professions. They observe work processes via video in real time with the aid of observation sheets. The students analyze, implement and reflect upon work processes. They work at the companies they have chosen for the typical working hours for two weeks.

### *Company field trip*

The students take on the role of a researcher. They observe, analyze and reflect business operations from this position. The students

compare their knowledge of economic realities with social studies theories and consider them critically. And they record their results and document them as carefully and precisely as possible in an internship file.

To gain differentiated insights into the real working and business world, systematically organized company visits are carried out, in which students deal with assigned or independently chosen issues through intensive observation and interviews of the employees usually working in small groups. This way the following methods of empirical social science research will be trained in particular:

- hypothesis formulation
- measurement methods (operationalization, selection of indicators)
- development of questionnaires with open and closed questions
- implementation of written questionnaires
- implementation of qualitative and quantitative interviews and observations
- interpretation of correlations, trends, causalities
- limits of social science theories

The collection of compiled data into graphically depicted results is also one of the relevant social science methods. Statistics and graphs are examined in the classroom according to what they reveal about the intentions of the author. Things not mentioned in the interviews can play a role as well as the emphasis on graphs or mathematical weights. Furthermore, a product-oriented and not only receptive use of data also opens up the opportunity to learn and simulate single statistical methods of data analysis. During the internship, the following can be observed: job-related tasks, working tools, manufacturing processes as well as technical, economic and organizational principles. These can be systematically analyzed with the help of the professional methods previously practiced. This includes the process of video analysis, during which students are asked to

- describe a workplace (e.g. typical activities)
- observe this place (e.g. physical, social and mental requirements; external influences; communication behavior) and
- to evaluate it (own judgment; common assessment).

Such detailed observation tasks can enrich the lessons, as they stimulate discussions about the difference between observable behavior and social interpretation of behavior. In this way, moments of selective perception, the projection of the observer, symbols of the interaction (for the negotiation of roles), and the expression of behavior patterns are discussed.

Nevertheless, with respect to possibilities of experience some restrictions have to be made (Schuhen 2009): Due to the role definition of the students as trainees, some employees' experience and specific activities typical for a job and job requirements are not accessible to them. Furthermore,

the emerging contrast between the new working reality and the well-known school reality somewhat complicates the critical assessments on the students' part (see: Krol et al. 2006). The internship provides an opportunity to apply acquired knowledge in concrete situations as stipulated by Hedtke and Hippe. In addition, the practical training also offers the chance to use that knowledge beyond school in a "company learning location" to produce new motivation, to sharpen vague ideas about professions and to guide these ideas down realistic paths. The "trip" to the world of work is not so much seen from the perspective of a direct requirement for the career choices of the students. Rather, "real encounters" are organized to deepen selected economic and social aspects within social science teaching.

Several module elements based on the Bad Honnef model are provided by Jacobs, Schalück and Wolf (2011) as well as Schlösser, Schuhen, Schürkmann and Weyland (2011a, 2011b). They are practically tested and evaluated for the preparation, execution and follow-up of the company internships in all types of schools.

### 2.3 Simulation und testing hypotheses – the case of classroom experiments

In 1948 Chamberlin constructed the first market experiment for his students. With very little effort he was able to simulate the emergence of the market price. Inspired by this idea, one of his students, Vernon Smith, developed further market experiments for which he was awarded the Nobel Prize in 2002. Smith realized that studying even a relatively small number of market players with very limited information produced similarly informative results to those of broad statistical surveys.

One of the most well-known classroom experiments is the so-called ultimatum game. In this game a class is split into two halves: the „owners“ and the „have nots“. The owners possess 10 Euros each and have to decide how much they will give to their partner from the „have nots“ group. The partner then agrees or disagrees to the distribution. „Yes“ means that both get a proportional amount of the money which the owner has previously determined. „No“ means that both get nothing. When the students negotiate successfully, both groups benefit. The question is: With which distribution of wealth does the game end?

Classical economic theory makes a clear prognosis, which is based on the „homo oeconomicus“ model: it predicts that the owners will give away one Euro, since that is what „homo oeconomicus“ would do. If the partner from the „have nots group“ accepts one Euro, then he gets one Euro. If he rejects it, he receives nothing. Since one Euro is better than nothing, he accepts it. And because the owners also act according to „homo oeconomicus“, they anticipate this behavior. However, in practice, the results show something completely different: When the ultimatum game is played in class (either with real money or gummi bears), almost no one of the

owners offers only one Euro. When the owners offer less than half the money the distribution is typically rejected by the have nots. Game theorists come to similar findings in their research: People have an „aversion to unfairness“. They want to punish a person for being unfair.

What do students learn in the context of this experiment? Unlike in a passive, text-reproducing assignment, the students test scientific statements in an active and empirical way. Subsequently the results of the experiment are compared to the predictions of classical economic theory. The students then establish the similarities and differences. This experimental approach is thus a scientific propaedeutical form of discovery-based learning.

According to many economic education experts, classroom experiments are also appropriate for provoking controversial questions about business ethics. Here is an example: The fishing game, also known as the „tragedy of the commons“ (Hardin 1968). The students take on the role of fishermen who decide themselves on the amount they catch and thus systematically destroy their fishing grounds by privatizing profits and shifting the cost on the public. What alternatives exist? In order to answer this question, the fishermen first have to recognize the core of the problem and then discuss realistic solutions. The students deal with the typical characteristics of a „common resource“: no property rights, non-exclusivity and rivalry in utilization of resources. Then they consider the consequences of possible solutions (smaller nets, smaller boats, shortening the fishing season, introduction of a fishing limit). The take home message of the game is that under certain conditions, rational decisions can lead to disaster. Finally the students attempt to transfer the common goods-dilemma to real political problems. Overall, this approach facilitates working with ideas that would otherwise be difficult for students due to their complexity (see: Ziefle 2000).

Classroom experiments display a high level of flexibility with respect to their structure and results. The students are provided with a wide range of possibilities of action, within which they can try out different strategic options. When strategies prove successful, they can broaden students' repertoire of skills and also increase the confidence with which they act in real situations. They also develop their ability to act through practical exercises. With respect to economic education processes, classroom experiments represent a domain-specific form of simulation. Conflicts of interest are purposefully built into the game so that the students have to systematically make and give reasons for their decisions in order to overcome the opposing interests and dilemmas. For example, in the Cournot-oligopoly game players represent companies, and their courses of action are based on the variation of supply. In the Bertrand game, players can set and change supply prices. In the experiment regarding the prisoner's dilemma, players take on the roles of two prisoners and they have to choose between testifying or remaining silent (see: Schuhen 2005).

Classroom experiments are particularly suitable

for senior high school courses, since hypothesis tests which are based on Popper's method can be considered the central characteristic of the academic work (academic orientation). With the help of classroom experiments, cooperation problems and conflicts of interest are simulated, students are prepared for strategic decision-making situations and they actively and playfully test advanced elements of economic theory in educational ways. In addition, they lead to results which cannot be predicted beforehand and thus enable students to discover the world of economics in an enquiry-based and problem-oriented way. This is an important prerequisite for teaching economic concepts and keeping students interested. The success of this method in educating economics students is evident in the studies which have been carried out (Becker & Watts 1998; Gremmen & Potters 1997) as well as the various textbooks from the last 15 years which provide experiments as supplemental material. Schlösser et al. (2009) provide several classroom experiments which have been specifically developed and tested on topics such as supply and demand, market forms (polypoly, monopoly, oligopoly) and auctions. Schuhen and Weyland (2011) offer a tested and evaluated compilation of module elements for classroom experiments.

## 2.4 Further projects in brief

More than half of all students opt for a supplementary course in business and computer science. New course contents, innovative learning methods and alternative methods to assess learning are developed and tested here. Interdisciplinary learning and working with modern media are foundational aspects of these courses. For example, the 8th grade courses take part in the competition youth tests of Stiftung Warentest, a publicly funded product testing foundation. The students have to develop a product test in small groups with professional supervision and test the chosen products themselves. All groups have to put together a file and present their findings.

In the final two school years, economics is taught as a discipline in which students can major within social studies. The students are enabled and encouraged to work with business partners outside of school thus fostering the integration of theoretical knowledge with concrete experiences in the real world. Teaching focuses on current economic and sociopolitical questions, which are then analyzed and debated controversially in class. On the one hand, these teaching measures help students prepare for the tests in the central high school exam. On the other hand, the quality of lessons is improved through detailed examples, case studies, simulations, and field experts.

Since 2003, the Siebengebirgsgymnasium has participated in the business@school competition every year. In this competition, teams of students from the 10<sup>th</sup> and 11<sup>th</sup> grades analyze listed and local companies. Subsequently, the students develop their own business ideas, complete with a business plan. They are coached by consultants from the



Boston Consulting Group in this process. The students acquire a wide spectrum of detailed knowledge, but also social and methodological skills. Furthermore, they learn to present and assert themselves with their newly gained knowledge in front of various audiences and in different environments (city hall, Post Service Tower). In 2009, 2011 and 2012, students from the Siebengebirgsgymnasium won the school and regional competition with their business ideas and successfully participated in the European final competition in Munich.

### 3 Conclusion

All of the projects presented in this article have two things in common: On the one hand, the attempt to strengthen economics education within the narrow framework of a school of the general education system in Germany. On the other hand, a social science-based understanding of economics education, according to which all real economic processes and structures are incorporated into a social, legal and political infrastructure and thus cannot be dealt with one-dimensionally.

For this reason, along with in-depth, domain-specific and methodical competencies, specific communication, decision-making skills and ability to act are also becoming essential for students. As was demonstrated in the example of the company internship, real and actual economic life situations should be experienced, explained and assessed from different perspectives. Corresponding to the problem-oriented structure of the lesson concepts is the necessity to explore issues as in-depth as possible in order to create knowledge-based prerequisites for making judgments and analyzing theories. The development of pragmatic-instrumental abilities and practicing quantitative methods is related to the determination of economic issues – not only in class, but also in oral or written assessments. Game-based and enquiry-based forms of learning motivate and mobilize political-economic potential for thought and action among students (see: Scholz 2009). In combining action and reflection, they offer a specific contribution to the knowledge about economic structures and processes, such as are shown in the examples of the island game and ultimatum game. Students also learn to look for alternative solutions and defend their positions in well thought out ways, such as is demonstrated in the fishing game example.

When economics education aims to enable students „to accomplish tasks and shape current and future life situations“ (IÖB 2012, translation by the authors), from both a didactic and practical teaching perspective it seems essential to strengthen domain-specific subject methods. In addition, the amount of simulating, problem- and reality-oriented learning arrangements must be significantly increased. Under these conditions the goal of connecting politics and economics can be attained and the ideal of the person knowledgeable about social sciences can become a realistic

standard for the classroom.

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